

# Home Automation

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## Abstract

Home automation refers to the ability of your home to make its own decisions depending on the environmental conditions and give you the option to control it from a remote location. In this project, we primarily aim to control appliances in two ways: automatic control and User control.

We detect human presence and count the number of people in a particular part of the house and check if additional lighting is required based on the light intensity already present in the room. The user also has control over the light through his phone or any google home device.

We will also work on fan control in the same way, using LM35 sensors for automatic control.

## Literature Survey

<https://codeometry.in/home-automation-using-nodemcu-and-google-assistant/>

<https://www.electronicwings.com/nodemcu/pir-interfacing-with-nodemcu>

<https://www.irjet.net/archives/V4/i6/IRJET-V4I6126.pdf>

<https://www.electronicwings.com/nodemcu/control-home-appliances-using-google-assistant>

## Objectives

The aim of this project is to understand the working and applications of NodeMCU and important sensors like PIR, LDR, IR, etc.

## Implementation

We plan to implement this on NodeMCU. PIR and LDR sensors will be interfaced with the NodeMCU to read the data, which then processes the information and sends the output to the appliance connected to it via a relay. For user control, we plan to use Google Assistant to input data, which then transfers the data to the Adafruit feed via IFTTT. NodeMCU which continuously monitors the Adafruit dashboard receives the information and controls the appliance accordingly.

## Scope

Home Automation can be used to save energy and reducing human effort in doing so. It can aid in the creation of Smart Homes.

## Timeframe

Approx time of review	Expected Status
Phase One (Jan mid)	Get familiarized with working of NodeMCU and learn to interface the sensors with it.
Phase Two (Feb end)	Finish implementation of auto control part.
Phase Three (March mid)	Finish implementation of the user-control part.
Phase Four (Mar end)	Integrate both parts and test.

## Project Budget

- NodeMCU
- PIR sensor
- LDR sensor module

- IR sensor module
- LM35 sensor

Cost around 2k.(Approx)

**Monitoring and Evaluation**

Meetings will be held regularly(mostly weekly twice) and progress(tasks assigned to students) will be checked.